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Valvular Heart Disease

CHANGES OF MITRAL REGURGITATION AFTER SURGICAL AORTIC VALVE REPLACEMENT AND TRANSCATHETER AORTIC VALVE IMPLANTATION: A TWO-DIMENSIONAL ECHOCARDIOGRAPHY STUDY

ACC Moderated Poster Contributions
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Background: Concomitant mitral regurgitation (MR) is frequently seen in patients with aortic stenosis (AS).

Methods: We evaluated change of MR 12±10 days after surgical aortic valve replacement (SAVR) without mitral valve (MV) surgery and transcatheter aortic valve implantation (TAVI) using 2-dimensional echocardiography (TTE) in 52 patients (35 SAVR and 17 TAVI) with severe AS and moderate MR defined as MR jet area ≥4cm2. MV tenting height and area were obtained in the parasternal long axis view at mid-systole. MR jet area was also obtained in the apical 4-chamber view. Reduction of MR jet area ≥30 % was defined as MR improvement.

Results: There was no difference in MR severity, age, AS severity, LV size and function between SAVR and TAVI group at baseline (Table). MR was improved in 20 of 36 patients with SAVR (55.6%) and 6 of 17 patients with TAVI (41.2%). In SAVR group, LVEDV and LVESV were significantly improved after SAVR (Table, 80±32.2 vs. 65.4±23.8ml, p<0.001; 37.2±27 vs. 29.1±19.3ml, p<0.001, respectively). MV tenting height and area and MR jet area significantly improved after surgery (7.8±2.3 vs. 6.7±1.9cm, p<0.001; 1.2±0.6 vs. 0.9±0.4 cm2, p<0.001; 6.0±2.1 vs. 4.2±4.0cm2, p<0.001, respectively). On the other hand, there was no significant improvement in those parameters after TAVI.

Conclusion: MR and tenting significantly reduced after surgical AVR, but not after TAVI.

Table Clinical characteristics and echocardiographic data (n=53)

	SAVR (n=36)		TAVI (n=17)		P value (pre SAVR vs. pre TAVI)	P value (pre vs. post SAVR)	P value (pre vs. post TAVI)
	pre SAVR	post SAVR	pre TAVI	post TAVI			
Age (yr), mean±SD	84.4±8.8		87.4±10.4		0.43		
Male, n (%)	17 (48.6%)		11 (64.7%)		0.27		
Atrial Fibrillation, n (%)	19 (54.3%)		12 (70.6%)		0.26		
Hypertension, n (%)	28 (80%)		14 (82%)		0.84		
Hyperlipidemia, n (%)	25 (71.4%)		12 (70.6%)		0.95		
Diabetes, n (%)	14 (40%)		6 (35.3%)		0.74		
LVED dimension (mm)	44.9±6.9	44.2±6.9	47.6±7.0	49.0±9.0	0.24	0.5	0.16
LVES dimension (mm)	30.5±11.0	29.4±9.2	36.9±9.8	36.5±11.6	0.05	0.56	0.71
LA dimension (mm)	42.5±5.8	41.9±5.0	43.4±6.2	43.4±6.4	0.5	0.43	0.87
Peak AV gradient (mmHg)	75.4±25.3	22.9±9.8	71.0±26.0	20.9±0.6	0.56	<0.001	<0.001
Mean AV gradient (mmHg)	43.7±13.6	11.9±5.3	41.3±16.6	10.3±4.8	0.57	<0.001	<0.001
Aortic valve area (cm^2)	0.6±0.2		0.5±0.1		0.32		
LVED volume (ml)	**80.0±32.3**	**65.4±23.8**	**95.2±40.0**	**96.2±43.7**	0.25	**<0.001**	**0.39**
LVES volume (ml)	**37.2±27.0**	**29.1±19.3**	**53.2±38.8**	**49.2±43.7**	0.14	**<0.001**	**0.99**
LVEF (%)	59.4±17.1	59.1±16.7	49.3±19.6	49.1±35.6	0.07	0.98	0.38
LA area (cm2)	26.2±7.3	23.8±5.0	25.6±6.3	25.0±6.6	0.79	0.02	0.67
MR jet area (cm^2)	**6.0±2.1**	**4.2±4.0**	**7.5±2.9**	**6.8±4.6**	0.07	**0.01**	**0.64**
Tenting height (cm)	**7.0±2.3**	**6.7±1.9**	**8.4±2.3**	**7.4±2.3**	0.31	**<0.001**	**0.05**
Tenting area (cm^2)	**1.2±0.6**	**0.9±0.4**	**1.4±0.5**	**1.1±0.7**	0.28	**<0.001**	**0.07**

LVED, left ventricular end-diastolic; LA, left atrial; AV, aortic valve; LVES, left ventricular end-systolic; LVEF, left ventricular ejection fraction; MR, Mitral regurgitation